

RESEARCH AND DEVELOPMENT, NEUCHATEL - QUARTERLY REPORT

DIVISION : QUALITY ASSURANCE + TECHNICAL SERVICES
SUBJECT TITLE : ANALYTICAL SERVICES
PERIOD COVERED : APRIL - JUNE 1990
WRITTEN BY : Turpin-D. (DAT)
KEYWORDS : chocolate, cocoa, humectants, sugars,
sorbitol, seam glue, filter glue, tipping
glue, licorice, menthol, methods.

1. ASSISTANCE TO FTR

1.1 INCOMING INSPECTION

The objective of incoming inspection is to ensure the constant quality of ingredients, filter additives and glues used by FTR, as well as conformity to PM specifications. During the reporting period, 128 deliveries were checked.

Two were replaced by the supplier due to machinability problems:

Lesso 1794/1 filter glue from Laesser (Nos 6552 and 6617). Since the analyses did not show any formulation difference from references, trials were made with samples deliberately altered by the supplier according to the possible errors in production process. They showed that problems were likely to be due to a negative effect of the storage period on the glue rheology and not to a defective production process. Investigations are under way for confirmation.

1.2 FOIL-MENTHOLATING

Menthol content was routinely determined:

- on alu-foil for 27 various productions of mentholated bobbins for FTR and export
- on cigarettes for 10 various productions of FTR mentholated brands.

All results complied with specifications.

2028634568

RESEARCH AND DEVELOPMENT, NEUCHATEL - QUARTERLY REPORT

1.3 SPECIAL PROBLEMS

Standardization of menthol solutions

Trials were included in project MONKEY. They are under way and deal with both the dose and type of menthol solution for mentholated Marlboro.

Storage of mentholated bobbins

Trials are under way to check whether the maximum limit of storage period may be extended from 4 to 6 months.

2. ASSISTANCE TO AFFILIATES

Menzio block licorice used at PMH

Due to repeated filters blocking when pumping solutions at the Primary, deposits taken from the filters were examined. They were identified as hard-to-dissolve licorice fragments. Investigations pointed out, that due to defective thermostating during the production of the licorice extract, they had formed on the vat wall and contaminated the lot. Excessive heating will be avoided by the supplier for future productions.

Stability of PMS-AC at PMH

Due to sedimentation during storage of PMS-AC, studies have been made to modify the recipe in order to obtain a stable and homogeneous PMS-AC solution. Further to proposals from Richmond flavor specialists, a test is planned within the next three months.

Procedure for the detection of PVC in materials at PMB

A quick qualitative test was developed for the detection of PVC in non-tobacco materials in order to check their compliance with the legislation. The procedure was sent to PMB.

Specifications of ingredients and filter additives

A revision is under way to set up a pan-European system of incoming inspection. Critical parameters were defined. Specifications drafts were finalized and distributed to the suppliers by Purchasing.

2028634569

RESEARCH AND DEVELOPMENT, NEUCHATEL - QUARTERLY REPORT

Interlab testing is under way with F&C for the inspection of licorice powder. Tests with other suppliers will be initiated during the next three months.

3. ASSISTANCE TO HEADQUARTERS AND LICENSEES

Chloride in tobacco

Chloride content was determined in 54 tobacco samples from various origins.

RL-Yugoslavia

Humectant- and sorbitol-content determinations were made on various samples as assistance to the Yugoslavian foil producer.

Librokol C: PVA cigarette seam glue from Karbon - Yugoslavia

The above glue was evaluated with the aim of switching to the nozzle application for PM production under licence. Unacceptable traces of phtalate were detected. Trials were temporarily halted.

Glues for the production under licence in Cameroun

In order to avoid trouble switching to the PM specified glues for small productions, those currently used for competitive brands are being evaluated.

BET-Export-PC made at FTR for ATO

The possibility to keep the solution at 54°C for a period long enough to process several successive tobacco batches, due to strong crystallisation at ambient temperature, was investigated. The extension of the usual heating period was found to affect the quality of BET-PC. FTR will therefore keep exporting the solution in drums containing the amount required for processing one tobacco batch. The packaging conditions were adjusted to fit the new weight of ATO tobacco batches.

2028634570

4. ASSISTANCE TO OTHER GROUPS

Analytical Research

Humectant content of seven various RL samples was determined for project ORDER.

Manufacturing Services

Base-flavor reference samples from PMI were examined for future incoming inspection.

Samples of export solutions were examined to set safety sheets.

Analyses are being routinely made on Marlboro cigarettes to evaluate the migration of humectants from tobacco to filters and packaging as a function of storage period.

Interlab testing between PME and PM-USA is under way for project AMETHIST. Various samples of flavors and casing solutions are being examined by both laboratories using methods of R&D-USA:

- determination of glycerin and sugars by HPLC
- determination of glycyrrhizic acid by HPLC
- determination of water, ethanol, PG and glycerin by GC.

The results are expected for end July. Another test will be made during the next three months for the determination of vanillin in tobacco.

Material testing

Finish-oil content and single denier were routinely determined on samples of tow for incoming inspection by both traditional and infraalyser methods.

Citrate and acetate content of various cigarette paper samples from Wattens and Schoeller & Hoesch was determined in order to check the correlation between suppliers and QA-R&D methods.

In order to evaluate the situation with regard to titanium dioxide in tipping papers, various European competitors' brands were examined. Titanium dioxide was detected in the tipping paper of all samples. Further investigations will focus on the tipping papers of PM brands.

2028634571

RESEARCH AND DEVELOPMENT, NEUCHATEL - QUARTERLY REPORT

Process Development

Humectant content of tobacco samples was determined for projects CLEVELAND, MARIA, NILE, ET-PAN-EUROPE, PISSARO, SPENCER and WARHOL.

Product Development

Determinations of menthol content were made on tobacco rods, filters and smoke of various prototypes for projects ALEX, DIETER and MONKEY.

Additive content of four cigarette-paper samples was determined for project HYENA.

Investigations were made to find a seam glue suitable to the production of filter-cigarillos. Trials with liquid starch Lesso 1487 X3 were successful.

Product Research

Analyses of humectants, menthol, water, ethanol and sugars were made for the development of an infraalyser method for the quality control of various casing solutions.

Nine samples of various cigarette papers were examined for project NEPTUNE to evaluate the effect of additives and load on the side-stream smoke.

Quality Audit

Menthol content was determined in PM and competitors' brands for CIR.

Further to a consumer's complaint about Fortuna cigarettes having a slight menthol taste, menthol content of various Fortuna samples from the same market area was determined. Menthol was not detected in the samples.

Humectant content of various Monital MS cigarettes was determined for production cost evaluation.

Tobacco Monitoring

Humectant-content determinations were routinely made on samples from various tobacco lots.

2028634572

5. QUALIFICATION TRIALS

A new product is only accepted if it has successfully passed the following tests and trials:

- analytical evaluation to examine product conformity to PM specifications and German legislation
- production of cigarettes and subjective evaluation by Panel B and Panel A.
- machinability trials
- industrial trials

5.1 QUALIFICATION OF ALTERNATIVE SUPPLIERS

The following trials were initiated to qualify alternative suppliers of ingredients, filter additives and glues:

- synthetic menthol from TAKASAGO. Analytical and subjective evaluations were successful. Industrial trials are planned for the next three months.
- Propyleneglycol from ARCO-France. Local industrial trials were successful at FTR and PMH. They are under way at PMG.
- Cochise supplied by THORESEN and produced with SUCHARD and LINDT & SPRUNGLI peels. Qualification was finalized at FTR. Local confirmation tests are under way at PMG and PMH. Alternative sources of cocoa peels are being investigated.
- Cochise from NEAL-Bremen. Trials were initiated to qualify an alternative European supplier. Analytical and subjective evaluations were successful. An industrial trial is planned at FTR for the next three months.
- Cocoa powder from NESTLE. Trials were initiated to find an option to the JACOBS powder which will no longer be produced. Analytical and subjective evaluations were successful. An industrial trial is under way at FTR.
- Cocoa powder from DUTCH COCOA, already used by PMH. Qualification was finalized for FTR.
- Chocolate from DE ZAAN, already qualified at PMH. A local confirmation at FTR was successful as far as taste was concerned. However, since this ingredient can only be delivered in 12 kg blocks, FTR is investigating the installation of breaking equipment at the casing kitchen. One ton was ordered for trials.

2028634573

RESEARCH AND DEVELOPMENT, NEUCHATEL - QUARTERLY REPORT

- Chocolate liquor. Three suppliers are being evaluated: LINDT & SPRUNGLI, NESTLE and BAKER'S CHOCOLATE GENERAL FOOD. Subjective evaluation is planned for the next three months.
- Swift L 710/16 PVA glue for cigarette seam. Analytical evaluation is under way.

5.2 QUALIFICATION OF REPLACEMENT PRODUCTS

The possibilities of solving some technical problems were investigated by replacing currently used ingredients, filter additives or glues:

- Lessoflex B2G gelatin seam glue from LAESSER. Marlboro prototypes were made at PMG-B for the analytical evaluation of the pyrolytic components of gelatin by R&D-USA. This evaluation did not point out any appreciable difference between the smoke of prototypes made with gelatin, starch paste or PVA glue. Panel A approval was confirmed. However, since gelatin requires a special application system, trials were halted. They may be resumed in the future if a liquid natural glue is required and if there is no other option suitable to the currently used nozzle-application system.
- Sichocoll GA 1530 gum-arabic seam glue from HENKEL. Subjective evaluation was not successful. Possible other developments of this glue type will be investigated with the supplier.
- Sichocoll A 7630/600 mp inner-filter glue from HENKEL. An industrial trial is under way at PMG-B to find a glue suitable for both KDF 2 and KDF 3.
- Lessotherm 2088/600 filter seam glue from LAESSER. Trials aimed at improving gluing of highly permeable papers are under way at INM and PMG-M. The resistance during a long storage period is being tested.
- Lesso 1520 A1 tipping glue, same polymer formulation as Lesso 1520 A but with a higher viscosity. Trials are under way at FTR in order to minimize the defects of tipping-paper gluing (seam back-fold).
- Lesso 1517-10 and 1517-11 new tipping glues from Laesser for the same objective as above. Analytical evaluation was successful. Subjective evaluation is under way.

2028634574

RESEARCH AND DEVELOPMENT, NEUCHATEL -- QUARTERLY REPORT

6. METHODS

Rheology testing and thermoanalysis are being investigated for the incoming inspection of glues.

Two PME-QA methods were issued:

- No 137, sucrose content determination in ingredients by enzymatic test.
- No 106, refractive index determination of liquids by an Abbe refractometer.

The following method is being evaluated in view of approval as an official PME-QA method:

- No 221, GC determination of menthol and humectants in tobacco and reconstituted tobacco leaf.

Testing is under way to develop methods for:

- sugars content determination in ingredients by HPLC
- sorbitol content determination in tobacco by HPLC
- sorbitol content determination in solutions by HPLC
- determination of glycyrrhizic acid in licorice extracts by HPLC
- fat, water and ash content of cochise by Infraalyser
- glycyrrhizin, ash and water content of powder licorice by infraalyzer.

D. Turpin

DAT/vep/July 13, 1990
as290.qr

2028634575